

UTA OIL AND GAS CONSERVATION COMMISSION

REMARKS _____ WELL LOG _____ ELECTRIC LOG _____ FIVE _____ X _____ MEASURES _____ WITH A PATENTED _____ SUB. NO. 2381 at 1

DATE FILED **4-14-92**

LAND, R.E. & PATENTED _____ STATE LEASE NO. _____ PUBLIC LAW NO. **U-65943** _____ H.D. 24

DRILLING APPROVED **6-8-92**

SPUDDED IN _____

COMPLETED _____ DIST. ORN. 1/11/92

INITIAL PRODUCTION _____

GRAVITY API _____

GOR _____

PRODUING ZONES _____

TOTAL DEPTH _____

WELL ELEVATION _____

DATE ABANDONED **12/17/94**

FILL _____

UNIT **WILDCAT**

COAL **MATT'S SUMMIT**

COAL **CARBON**

SE TO **MATT'S SUMMIT FEDERAL A-1**

LOCATION **1550' FNL** _____ **0700' FEL** _____ **SE NE** _____ **15**

Confidential

12S 9E 15 ANADARKO PETROLEUM CORP.



April 13, 1992

Utah Board of Oil, Gas and Mining
Suite 350, 3 Triad Center
355 West North Temple
Salt Lake City, UT 84180-1203

RE: Applications for Permit to Drill
Matt's Summit Federal #A-1
Matt's Summit Federal #A-2
Matt's Summit Federal #B-1

Gentlemen:

Enclosed in duplicate is Form 3, "Application for Permit to Drill" with supporting information for each of the referenced wells in Carbon County, Utah.

Please hold all information on these wells confidential.

If you should have any questions, please call either myself or Mr. John Broman at 713/875-0858.

Sincerely,

Susan Hathcock
Coordinator, Regulatory Affairs & Safety

SH:me

Enclosures

APR 14 1992

ST. K. DONOR
OFFICE, HOUSTON

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK			
1a. Type of Work DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/>		4. Lease Designation and Serial No. U-65943	
b. Type of Well Oil <input type="checkbox"/> Gas <input type="checkbox"/> Other Coalbed Methane <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone <input type="checkbox"/>		6. If Indian, Allottee or Tribe Name ---	
2. Name of Operator Anadarko Petroleum Corporation		7. Unit Agreement Name Matt's Summit	
3. Address of Operator P. O. Box 4499, Houston, TX 77210-4499		8. Farm or Lease Name Matt's Summit Federal	
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface 1550' FNL & 700' FEL of Sec. 15		9. Well No. A-1	
At proposed prod. zone Same		10. Field and Pool, or Wildcat Wildcat <input checked="" type="checkbox"/>	
14. Distance in miles and direction from nearest town or post office* Approximately 7 miles north of Helper, Utah		11. Q, Sec., T., R., S., or Blk., and Survey or Area SE/NE, Sec. 15, T12S, R9E	
15. Distance from proposed location to nearest property or lease line ft. (Also to nearest drilg. line if any)	16. No. of acres in lease	17. No. of acres assigned to this well	12. County or Parish
700'	1840	160	Carbon
13. Distance from proposed location* to nearest well drilling completed or applied for, on this lease ft.	19. Proposed depth	20. Rotary or cable tools	13. State
2319'	5000' <i>M.R.D.</i>	Rotary	Utah
21. Elevations (Show whether DL, RT, GR, etc.) GR: 8040'		22. Approx. date work will start*	
23. PROPOSED CASING AND CEMENTING PROGRAM			
Size of Hole	Size of Casing	Weight per Foot	Setting Depth
12-1/4"	8-5/8"	24.0	400'
7-7/8"	5-1/2"	15.5	5000'
			Quantity of Cement
			200 cu. ft.
			300 cu. ft.

Attached to this APD please find the following.

1. Survey Plat
2. Drilling Plan with BOP Schematic

RECEIVED
FEB 14 1992

5. "NONE OF"
"GAS" "OIL" "MIG"

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM. If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout prevention program, if any.

24. I hereby certify that this report is true and complete to the best of my knowledge.

Signature: *Susan L. Hest* Title: Coordinator, Regulatory & Safety Date: 4/13/92

(This space for Bureau or State office use)

APD No. 43 007-3015-1 Approval Date: 4-8-92

Approved by: _____
Cooperators of approval: _____

APPROVED BY THE STATE
OF UTAH, DIVISION OF
OIL, GAS & MINING
DATE: 4-8-92
J.P. Matthews
CONFIDENTIAL

*See Instructions On Reverse Side

TOWNSHIP 12 SOUTH

RANGE 9 EAST

S 89° 43' 35" E

ANADARKO PETROLEUM CORPORATION
MATT'S SUMMIT FEDERAL A-1
SET 5/8" x 24" REBAR
ELEV. = 7040.0

15

1550'

100'

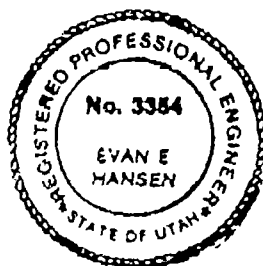
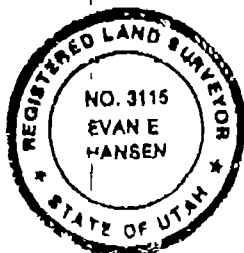
S 0° 01' E



SCALE: 1" = 1000'

NOTE

ELEVATION OBTAINED FROM STATION
"MATT'S SUMMIT" MARKED 7454 ON
MATT'S SUMMIT QUADRANGLE 7.5 MINUTE
TOPOGRAPHIC MAP



BASIS OF BEARING

BASIS OF BEARING S 89° 53' W, OBTAINED FROM B.L.O.
PLAT DATED OCTOBER 30, 1915 BETWEEN THE
NORTHWEST CORNER AND THE NORTH QUARTER CORNER
OF SECTION 14, TOWNSHIP 12 SOUTH, RANGE 9 EAST,
SALT LAKE BASE AND MERIDIAN

LEGEND

- ◇ FOUND BRASS CAP SECTION CORNER
- FOUND BRASS CAP QUARTER CORNER

SURVEYOR'S CERTIFICATE

I, EVAN E. HANSEN, DO HEREBY CERTIFY THAT I AM
A REGISTERED LAND SURVEYOR AND PROFESSIONAL ENGINEER HOLDING
CERTIFICATES NO. 3115 AND NO. 3354 AS PRESCRIBED UNDER THE LAWS
OF THE STATE OF UTAH. I FURTHER CERTIFY THAT I HAVE MADE A
SURVEY OF THE TRACT OF GROUND SHOWN AND THAT IT IS TRUE AND
CORRECT TO THE BEST OF MY KNOWLEDGE.

Evan E. Hansen
EVAN E. HANSEN

NOV 29 1991
DATE

Empire Engineering

1865 E. JAGWOOD RD PRICE, UTAH 84501

ANADARKO PETROLEUM CORPORATION
MATT'S SUMMIT FEDERAL A-1

Drawn By: TH	Approved By: EEH	Drawing No
Date 11-29-91	Scale 1" = 1000'	EEOG-116

DRILLING PLAN
TO ACCOMPANY APPLICATION FOR PERMIT TO DRILL

Company: Anadarko Petroleum Corp. Well: Matt's Summit Federal A-1

Location: SE NE Sec. 15 T12S-R9E Lease No: U-65943 (Federal)

1550' FNL & 700' FEL of Sec. 15

Carbon County, Utah Surface Elevation: 8040'

A. Estimated Tops of Important Geologic Markers:

<u>Geologic Marker</u>	<u>Depth</u>
Flagstaff	Surface
North Horn	850'
Price River	2150'
Castlegate Sandstone	3215'
Blackhawk Coal	4260'
Spring Canyon Sandstone	4750'

B. Estimated Depth at Which Water, Oil, Gas, or Other Mineral-Bearing Zones are expected to be encountered:

Gas-bearing Blackhawk Coals are expected to be encountered from 4260'-4750'.

All fresh water zones and prospectively valuable mineral zones encountered during drilling will be recorded by depth and adequately protected. All oil and gas shows will be tested to determine commercial potential.

C. Pressure Control Equipment:

An 11", 3000 psi WP double gate hydraulic BOP with pipe rams and blind rams will be installed on the 8-5/8" casing head. The BOP stack will be tested prior to drilling below surface casing. The ram preventers will be tested to 70% of the working pressure of the casing head. The annular will be tested to 50% of its working pressure. Operational checks will be made daily or on trips. A BOP schematic is shown on attached Exhibit "A".

The BOP system will be consistent with API RP 53. Pressure tests will be conducted before drilling out from under all casing strings which are set and cemented in place. Blowout preventer controls will be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned. Preventers will be inspected and operated at least daily to ensure good mechanical working order. This inspection will be recorded on the daily drilling report. Preventers will be pressure tested before drilling casing cement plugs.

The accumulator system will meet IADC guidelines concerning pump capacities, storage capacity, and reservoir volume. Closing unit fluid volume will be sufficient to pre-charge the system to operating pressure plus 50% excess. One set of controls will be in the doghouse on the rig floor and one set will be remote on the drilling pad.

D. Casing Program

Surface Casing - 8-5/8" casing will be set at approximately 400'.

Production Casing - 5-1/2" casing will be set at approximately 5000' if well is to be completed.

	<u>Size</u>	<u>Wt./Ft.</u>	<u>Grd.</u>	<u>Thrd.</u>	<u>Condition</u>
Surface	8-5/8"	24.0	K-55	8rd	New
Production	5-1/2"	15.5	K-55	8rd	New

Casing Design Factors

The safety factors on casing strings will equal or exceed the following values:

Collapse	1.0
Joint Strength	1.6
Burst	1.33

Cement Program

Surface - Cement will be circulated to the surface. Casing will be cemented with approximately 200 cu. ft. of API Class 'G' cement.

Production- Casing will be cemented with approximately 300 cu. ft. of API Class 'G' cement. The actual cement volume will be based upon hole depth and gauge and will be determined from logs. Cement will be circulated to the surface to protect possible fresh water zones.

Additional additives will be used to retard the cement, accelerate the cement, control lost circulation, or control fluid loss. All cementing will be done in accordance with API cementing practices.

E. Mud Program and Circulating Medium:

Fresh water circulation through the reserve pit will be used for drilling the 12-1/4" surface hole to 400'. A low solids, non-dispersed mud system with funnel viscosity of 35-40 seconds, API water loss of 10-20 cc/30 minutes, and 8.8-9.2 ppg mud weight will be used for drilling from below surface pipe at 400' to TD.

The mud system will be visually monitored.

A truck-mounted air drilling rig may be used to drill the surface hole to 400' and to pre-set the surface casing before moving a drilling rig on location to drill the rest of the hole to TD.

Sufficient mud materials will be stored at the well site to maintain mud requirements and to control minor well control or lost circulation problems.

F. Coring, Logging and Testing Program:

- a. Conventional coring in the Blackhawk Coal interval (4260'-4750') may be performed, depending upon shows and hole conditions.
- b. DST's may be run depending upon shows.
- c. The following logging program is planned for the interval from surface pipe to TD (400'-5000' est.):
 1. DIL
 2. LDT-CNL-ML-NGT-SDT over prospective intervals
 3. Possible GLT over prospective intervals
- d. A mud logging unit with chromatograph will be used from approximately 3200' to TD.
- e. Productive zones will be swab tested. Water produced during testing will be contained in the temporary reserve pit. All possible oil will be stored and sold. Gas may be flared during testing.

G. Abnormal Conditions and Potential Hazards:

Abnormal conditions such as abnormal temperatures or pressures are not anticipated. Potential hazards such as H₂S are also not anticipated.

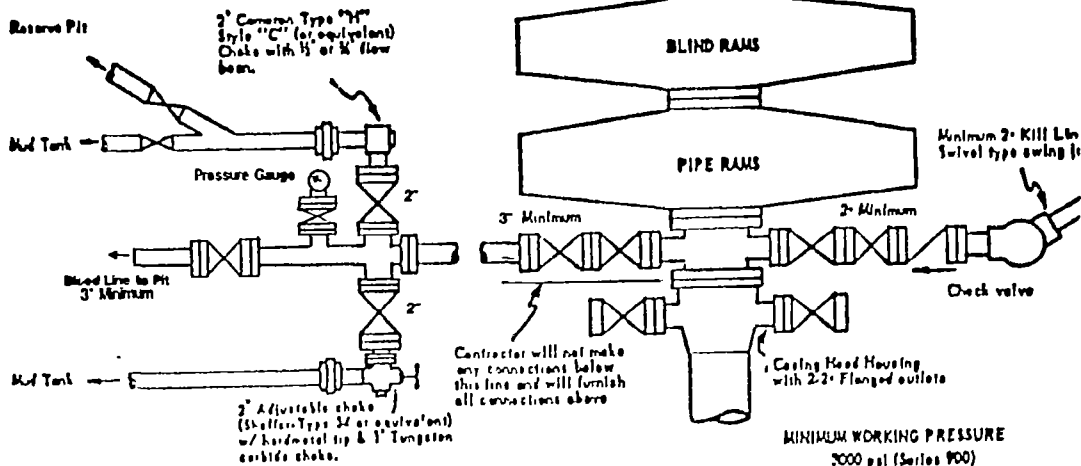


EXHIBIT A



MINIMUM BLOWOUT PREVENTER
REQUIREMENTS - NORMAL
PRESSURE (SHALLOW) SERVICE



State of Utah
 DEPARTMENT OF NATURAL RESOURCES
 DIVISION OF WILDLIFE RESOURCES

Southeastern Region
 455 West Railroad Avenue
 P.O. Box 84501 8209
 801-637-3310

April 21, 1992

Mr. Robert M. Anderson
 Heitzman Drill-Site Services
 P.O. Box 1579
 Casper, Wyoming 82602

Dear Bob:

The Division of Wildlife Resources (DWR) appreciates your letter of March 18 requesting our input on the development of an Environmental Assessment for Anadarko Petroleum Corporation's Matt's Summit Coalbed Methane Project. The following are DWR's comments, concerns, and recommendations regarding this project. These comments relate to full field development, as well as the exploratory phase of this project.

A variety of wildlife species inhabits the proposed project area. Impacts of this project vary according to species. Critical and high priority deer and elk habitats are found within the project boundaries. Impacts to these species will be displacement from traditional ranges due to disturbance from drilling activities. They will be forced to occupy less favorable habitats or habitats already occupied. In either case, vigor and reproductive success of these populations will decline. These species are most vulnerable to disturbances during calving, fawning, and winter seasons. Calving and fawning habitat is located on the southern portion of the project area. Critical winter habitat extends from the central portion of the area to the northern boundary. DWR suggests that no drilling activity takes place from 4/15 to 7/5 on the southern half of the project area and from 12/1 to 4/15 on the northern half of the project area.

Construction of barriers (fences, pipelines, conveyor systems and canals) that inhibit big game migrations to and from seasonal ranges must not be allowed. Fence specifications should meet existing criteria for height and design for livestock and big game. Enclosed is a copy of fence specifications that will enhance safety for wildlife.

(2)

Mr. Robert M. Anderson

April 21, 1992

As you know, the raptor survey conducted on March 25 revealed one stick nest in the NW1/4SW1/4 of Section 10. The activity of this nest can not be determined until later this spring. However, a 0.5 mile buffer zone around this nest does not include any of the proposed wells. This nest should be monitored to determine activity and what species utilizes this nest so that future planning can take this into consideration. Impacts to raptors of this exploratory project should not be significant. Full field development may cause conflict with this existing nest. Additional raptor surveys will need to be conducted prior to full field development.

The proposed project area supports numerous nongame mammals and bird species. Many of these make up the prey base for raptors and other carnivores found in this area. Due to the small home range of these small mammals and birds, any destruction of habitat is significant. Habitat destruction associated with drilling and road construction should be avoided where possible. Only necessary construction should be allowed.

Sage grouse inhabit the entire project area. No breeding leks are known to occur within project boundaries. However, leks are located within two miles of the project boundaries. Areas within a two mile radius of breeding leks are used for nest and brood habitat. This means that portions of the project area would be used as nest/brood habitat. Sage grouse have a limited distribution in southeastern Utah. The Park's population represents one of the few opportunities in this area to hunt or view sage grouse. Loss of this population would be significant. DWR suggests that activities be restricted from 3/15 to 6/30 in those areas of the project within two miles of a lek to minimize impacts to nesting sage grouse. These areas would likely include the north and east edges of the project area.

All water sources in the area are crucial to aquatic and terrestrial wildlife. Instream flows associated with perennial and intermittent drainages, as well as seep and springs, must be maintained at suitable levels for wildlife drinking water, wetland ecosystem maintenance, and fisheries maintenance. Actions resulting in a 50% or more reduction in available daily flow to wildlife should be disallowed. Water discharged into drainages must meet water quality specifications and should not significantly change instream water temperature. Water quality and quantity must not be negatively affected by actions associated with this project. Activities resulting in depletion of flows to the Colorado River Basin could necessitate a remittance to the U.S. Fish and Wildlife Service for recovery management of endangered species.

(3)

Mr. Robert M. Anderson

April 21, 1992

Surface disturbance in riparian zones should be avoided. Buffer zones should be established to protect riparian vegetation associated with perennial and intermittent streams, seeps, and springs. Riparian areas provide critical habitat for a wide variety of wildlife species and should be protected from disturbances associated with this project. Any disturbance to riparian vegetation that does occur will require revegetation.

Surface disturbance activities resulting in loss of habitat should be avoided or minimized. Unavoidable habitat disturbance will require mitigation. Short term projects, those that can be revegetated within the first growing season following commencement of the project, less than ten acres in size will usually only require revegetation and impact avoidance measures. Short term projects exceeding ten acres would require additional mitigation requirements. Surface disturbing impacts of any size which last beyond the first growing season following commencement of the project are viewed as long term and require significant mitigation. "On-site, in-kind, one-for-one" mitigation is preferred. If there are no other alternatives, "off-site or out-of-kind" mitigation can be negotiated.

Reclamation projects need to include closing and revegetating any roads constructed in conjunction with the project. Unnecessary existing roads in critical habitat should also be considered for closure and reclamation.

Reclamation projects should occur as soon after completion of the project as possible and must be designed to enhance the local area's wildlife habitat. The basic life requirements of wildlife (food, water, cover, and space) should be considered. Revegetation prescriptions must address terrain and soil characteristics and the species adaptability to the site. Seed purity, viability, seedbed preparation requirements, local precipitation and planting dates must also be considered. Revegetated areas should be protected from livestock grazing until establishment has occurred. A minimum of six species each of grasses, forbs and shrubs should be included in the plantings. The enclosed revegetation lists should be of assistance as reclamation for this project is planned.

Specific mitigation and reclamation measures can be recommended when the degree of impacts is determined and specific sites identified. Road closures, water developments, erosion control structures, grazing management, and vegetation treatments are some on-site possibilities. Long term impacts and cumulative

(3)

Mr. Robert M. Anderson

April 21, 1992

impacts associated with Cockrell Oil's gas field development may require off-site habitat acquisition and improvement. Cumulative impacts of these two projects will be significant and must be considered.

We appreciate the opportunity to provide comments at this stage of the project. Maps provided to you for the Cockrell EA should contain the habitat classification for elk, deer, moose and sage grouse. If you have any questions or if we can be of further assistance, please contact Ken Phippen, Regional Wildlife Manager (637-3310).

Sincerely,



Miles Moretti
Regional Supervisor

Copy: Ralph Miles, DWR
Mark Bailey, BLM

SR/icl

Enclosures

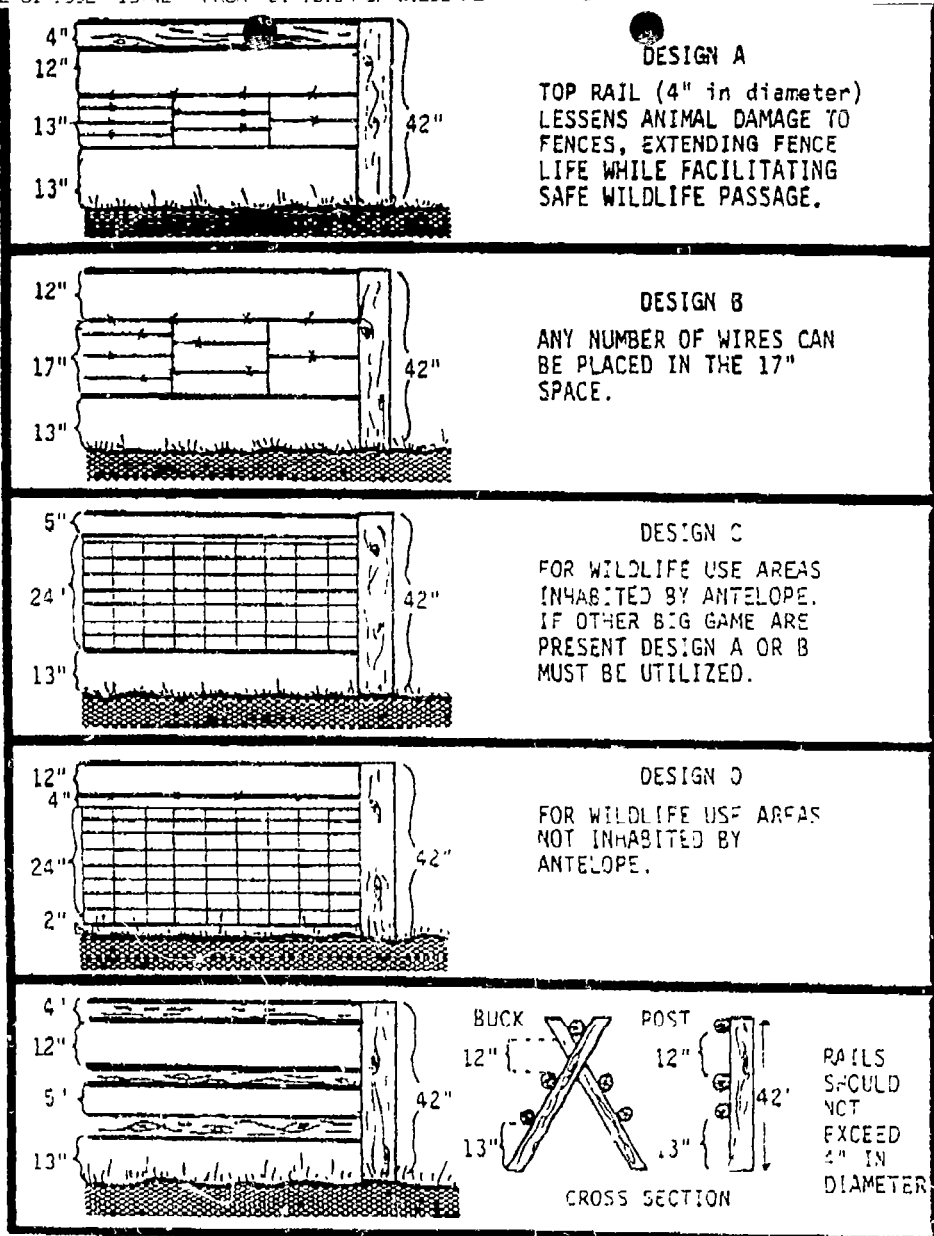


FIGURE FS. Fence specifications for containing livestock while allowing big game passage. Total fence height must not exceed 42". The space between the two top wires should be at least 12" to allow passage of juvenile big game, a smooth top wire is needed. The bottom wire should be at least 13" from the ground and smooth to allow big game to crawl beneath, particularly antelope.

Table 1. Revegetation prescription for disturbed areas within the ASPEN ecosystem in the MONTANE ecological association.¹

Plant Material	Pounds of Pure Live Seed/ACRE
GRASS SPECIES²:	
Mountain brome (<i>Bromus caryinatus</i>)	2.0
Smooth brome (<i>Bromus inermis</i>)	1.0 (southern variety)
Paiute orchardgrass (<i>Dactylis glomerata</i>)	0.5
Intermediate wheatgrass (<i>Acrospyon intermedium</i>)	1.0
Kentucky bluegrass (<i>Poa pratensis</i>)	0.2
Meadow foxtail (<i>Alopecurus pratensis</i>)	0.5
FORB SPECIES³:	
Alfalfa (<i>Medicago sativa</i>)	1.0 (Ladak, Monad, Spreader)
Porter licorice root (<i>Ligusticum porteri</i>)	1.0
Rocky mountain penstemon (<i>Penstemon strictus</i>)	0.5
Silky lucine (<i>Lupinus sericeus</i>)	1.0
Pacific aster (<i>Aster chilensis</i>)	0.2
Sweet arice (<i>Desmodium illinoense</i>)	1.0
SHRUB AND TREE SPECIES⁴:	
Antelope bitterbrush (<i>Purshia tridentata</i>)	0.5
Mountain snowberry (<i>Symphoricarpos oreophilus</i>)	2.0
Mountain big sagebrush (<i>Artemisia tridentata vaseyana</i>) ⁵	0.25 (20% purity)
Silver sagebrush (<i>Artemisia cana vaseyana</i>)	0.5 (20% pur ty)
Woods rose (<i>Rosa woodsii</i>)	1.0
Red elderberry (<i>Sambucus racemosa</i>)	1.0 (uncleaned)
TOTAL	15 15
NURSERY OR TRANSPLANT STOCK⁵:	
Quaking aspen (<i>Populus tremula</i>)	STEMS/ACRE (SPACING)
Bigtooth maple (<i>Acer saccharum grandidentatum</i>)	1,210 per acre (6 ft apart)
Mountain ash (<i>Sorbus scopulina</i>)	436 per acre (10 ft. apart)
	436 per acre (10 ft. apart)

¹Note attachment: Recommended guidelines for seedbed preparation and planting techniques in the MONTANE ecological association.

²Alternate grass species: Basin wildrye (*Elymus c. neryus*) Bearded wheatgrass (*Acrospyon trochaeolum*), Thurber fescue (*Festuca thurberi*), Foxtail barley (*Hordeum jubatum*)

³Alternate forb species: Gray aster (*Aster glaucodes*), Showy goldeneye (*Helianthus multiflorus*), C. cer milkverch (*Astragalus cicer*), Lobelief groundsel (*Sonchus oleraceus*), Amer calli vetch (*Vicia americana*), Mountain goldenrod (*Solidago multiradiata* - collected)

⁴Alternate shrub and tree species: Shrubby cinquefoil (*Potentilla fruticosa*), Saskatoon serviceberry (*Amelanchier alnifolia*), Wax currant (*Ribes cereum*), White rubber rabbitbrush (*Chrysothamnus nauseosus hololeucis*), Blue elderberry (*Sambucus racemosa*), Bigtooth maple (*Acer saccharum grandidentatum*)

⁵Alternate nursery or transplant stock: Willow (*Salix* spp.), Rocky mountain maple (*Acer glabrum*)

⁶This species should not be covered. It should be hydrosprayed in the seed mix slurry or broadcast over the surface after drilling or covering of other seed and before application of mulch.

⁷For regeneration of aspen stands it is recommended that remnant aspen clones be ripped with a chisel toothed tool to break up the rhizomatous structures. This should stimulate avertitious sprouting of aspen from the rhizomes.

Table 1. Revegetation prescription for disturbed areas within the RIPARIAN WETLAND ecosystem in the MONTANE ecological association.

Plant Material	Pounds of Pure Live Seed/Acre
GRASS SPECIES²:	
Reed canarygrass (<i>Phalaris arundinacea</i>)	0.5
Timothy (<i>Phleum pratense</i>)	0.5
Kentucky bluegrass (<i>Poa pratensis</i>)	0.2
Beard grass (<i>Bromus biebersteini</i>)	1.0
Meadow fescue (<i>Festuca pratensis</i>)	1.0
Basin wildrye (<i>Elymus cinereus</i>)	1.0
Streambank wheatgrass (<i>Agropyron dasystachyum riparium</i>)	1.0
FORN SPECIES³:	
Strawberry clover (<i>Trifolium fragiferum</i>)	1.0
Richardson geranium (<i>Geranium richardsonii</i>)	1.0
Pacific aster (<i>Aster chilensis</i>)	0.2
Western yarrow (<i>Achillea millefolium lamulosa</i>)	0.1
Silky lumine (<i>Linum sericeus</i>)	1.0
Snowy goldeneye (<i>Xanthoxis multiflora</i>)	1.0
SHRUB AND TREE SPECIES⁴:	
Silver sagebrush (<i>Artemisia cana</i>) ⁶	0.5
Blue elderberry (<i>Sambucus cerulea</i>)	2.0 (uncleaned)
Red raspberry (<i>Rubus idaeus</i>)	1.0
Woods rose (<i>Rosa woodsii</i>)	1.0
TOTAL	
	14.0
NURSERY OR TRANSPLANT STOCK⁵:	
Willow (<i>Salix</i> spp.)	STEMS/ACRE (spacing) 1,210 (6 ft. apart) placed at high water line
Narrowleaf cottonwood (<i>Populus angustifolia</i>)	436 (10 ft. apart) evenly dis- tributed
Thinleaf alder (<i>Alnus incana occidentalis</i>)	436 (10 ft. apart) evenly dis- tributed
Beaked sedge (<i>Carex rostrata</i>)	10,888 (2 ft. apart) plugs cut from local stock and planted in moist areas

Note attachment: Recommended guidelines for seedbed preparation and planting techniques in the MONTANE ecological association.

- ² Alternate grass species: Sheep fescue (*Festuca ovina*), Rough stalked bluegrass (*Poa trivialis*), Smooth brome (*Bromus inermis* - northern variety), Intermediate wheatgrass (*Agropyron intermedium*)
- ³ Alternate for species: Idaho licorideroot (*Ligustrum tenuifolium*), Mountain bluebells (*Mertensia siliata* - cultivated), Vesatch penstemon (*Penstemon arizonensis*), Strawberry clover (*Trifolium fragiferum*)
- ⁴ Alternate shrub and tree species: Currant (*Ribes* spp.), Common chokecherry (*Prunus virginiana*), Raspberry (*Rubus* spp.), Red elderberry (*Sambucus racemosa*)
- ⁵ Alternate nursery or transplant stock: Water birch (*Betula occidentalis*), Red-osier dogwood (*Cornus stolonifera*), Mountain sedge (*Carex scopulorum*)
- ⁶ This species should not be covered. It should be hydrosprayed in the seed mix slurry or broadcast over the surface after drilling or covering of other seed and before application of mulch.

Table 1. Revegetation prescription for disturbed areas within the SAGEBRUSH/GRASS ecosystem in the MONTANE ecological association.

Plant Material	Pounds of Pure Live Seed/Acre
GRASS SPECIES²:	
Intermediate wheatgrass (<i>Agropyron intermedium</i>)	1.0
Slender wheatgrass (<i>Agropyron spachycaulum</i>)	2.0
Hard sheep fescue (<i>Festuca ovina</i>)	0.5
Regar brome (<i>Bromus blabratensis</i>)	1.0
Kentucky bluegrass (<i>Poa pratensis</i>)	0.2
Palute orchardgrass (<i>Dactylis glomerata</i>)	0.5
FORB SPECIES³:	
Alfalfa (<i>Medicago sativa</i>)	1.0 (Ladak, Mowed, spreader)
Northern sweetvetch (<i>Hedysarum boreale</i>)	1.0
Common sainfoin (<i>Onobrychis viciifolia</i>)	1.0
Pacific aster (<i>Aster chilensis</i>)	0.2
Easton penstemon (<i>Penstemon eastonii</i>)	0.5
Rockmountain penstemon (<i>Penstemon strictus</i>)	0.2
SHRUB AND TREE SPECIES⁴:	
Mountain big sagebrush (<i>Artemisia tridentata vaseyana</i>) ⁵	0.25 (20% outlay)
Basin big sagebrush (<i>Artemisia tridentata ssp. rigida</i>)	0.25
Mountain snowberry (<i>Symphoricarpos oreophilus</i>)	1.0
Wax currant (<i>Ribes cereum</i>)	1.0
TOTAL	11.7
NURSERY OR TRANSPLANT STOCK⁵:	
Shrubby cinquefoil (<i>Potentilla fruticosa</i>)	STEMS/ACRE (SPACING)
Wax currant (<i>Ribes cereum</i>)	Plant 544 of each species per acre
Mountain snowberry (<i>Symphoricarpos oreophilus</i>)	randomly spaced 4 feet apart to reach a goal of 2,722 stems/acre.

¹Note attachment: Recommended guidelines for seedbed preparation and planting techniques in the MONTANE ecological association.

²Alternate grass species: Bluebunch wheatgrass (*Agropyron spicatum*), Thickspike wheatgrass (*Agropyron dasystachyum*), Pubescent wheatgrass (*Agropyron intermedium trichosporum*), Smooth brome (*Bromus inermis* - southern variety)

³Alternate forb species: Oneflower sunflower (*Helianthella uniflora*), Palmer penstemon (*Penstemon palmeri*), Cider milkvetch (*Astragalus cicer*), Silky lupine (*Lupinus sericeus*), Porter lupin/carsot (*Lupinus porteri*)

⁴Alternate shrub and tree species: Antelope bitterbrush (*Purshia tridentata*), Saskatoon serviceberry (*Amelanchier alnifolia*), Gooseberry currant (*Ribes montigenum*)

⁵Alternate nursery or transplant stock: Antelope bitterbrush (*Purshia tridentata*), Utah serviceberry (*Amelanchier utahensis*), Squaw-spole (*Perovskia ramossissima*), Greenleaf manzanita (*Arctostaphylos patula*), Basin big sagebrush (*Artemisia tridentata tridentata*)

⁶This species should not be covered. It should be hydrosprayed in the seed mix slurry or broadcast over the surface after drilling or covering of other seed and before application of mulch

Recommended guidelines for seedbed preparation and planting techniques in the MONTANE ecological association.

- A. Seedbed Preparation: (1) Disturbed areas should be double ripped. (2) Fertilizer (0-16-8) at a rate of 100 lb/acre should be disked into the topsoil mass prior to seeding. (3) Where possible, the grass segment of the seed mix should be drilled. The remainder of the seed mix should be hydrosprayed in a slurry containing tackifier (60 lb/acre) and wood fiber mulch (400 lb/acre). Seed mix applied by hydrospray technique should be increased by 1.5 times. This first application containing seed should be immediately followed by another hydrosprayed slurry to incorporate some tackifier (60 lb/acre), more wood fiber mulch (2,000 lb/acre), and nitrogen fertilizer (33-0-0 distributed at a rate of 100 lb/acre). (3a) If a hydrospray technique is not utilized, the seed mix should be drilled. (3b) If broadcast, the seed mix should be doubled, sowed, and covered through use of a harrow or chain. (4) After seed application (3a or 3b), nitrogen fertilizer (33-0-0 distributed at a rate of 100 lb/acre) should be broadcast and an acceptable mulch should be applied at a rate of 2,000 lb/acre to protect raw soil from erosion and to conserve moisture. Mulch should be held in place by tackifying, crimping, or netting. (5) Seeding should occur following a permanent killing frost which is usually after October 1.
- B. Nursery Stock or Transplants: Planting of nursery or transplant stock should occur in spring when soil moisture is greatest. Nursery stock should be planted after dormancy breaks, greatest success for transplant stock is achieved during dormancy. Shoots spaced 2', 3', 4', 5', 10', 12', 13' and 15' feet apart will achieve 10800, 4840, 2722, 1210, 436, 302, 258, and 193 plants per acre respectively. A 60% canopy cover is the goal. All plantings need to have soil compacted around the roots.
- C. Cuttings of Woody Pterian Species (willow, cottonwood, etc.) Cut stems at a length of 12 to 18 inches from 1-3 year old local wild stock (0.5 to 1.0 inch diameter) with a 30-45° angle on basal end. Lateral branches and leaves must be removed. Cuttings can be immediately transplanted or if cut in winter cold stored in snow filled bags until the ground thaws. The basal end can be dipped in indolebutyric acid prior to planting to aid in root formation. When planting, all but one inch of the stem should be extended into the moist soil to a depth of the water table. This will protect rootsters from inadvertent injury. Dormant logs (1.5 to 6 inches diameter and up to 20 feet long) can also be used for many species as long as the water table is reached.
- D. Bare-root or Containerized Plants Prior to planting, bare-root or containerized plants should be stored at 34-39° F for one week to "harden". Planting should be in an adequately sized hole to insure that roots are well distributed and extending full length into the hole. For bare-root and containerized stock, care needs to be taken that the root hairs are not allowed to dry. The outer edge of the root mass for containerized stock should be scarified to alleviate root binding.
- E. Plugs Plugs of vegetation can be excavated with a shovel or front-end loader. They should be handled such that moist soil remains packed firmly around the roots. A similar sized hole needs to be excavated and the plug planted.
- F. Rhizome Plants Woody plants with interconnected root stock should be located and excavated intact. The tops of plants should be removed so that only one remains. Connecting roots should be sliced vertically and buried. In the instance of herbaceous plants, rhizomes can be harvested with a front-end loader and distributed with a manure spreader. A one inch layer of top soil should be compacted over plantings.

HEITZMAN DRILL-SITE SERVICES

DALE HEITZMAN

ROBERT M. ANDERSON

May 5, 1992

Ms. Dianne R. Nielsen, Director
State of Utah
Division of Oil, Gas and Mining
3 Triad Center, Suite 350
Salty Lake City, Utah 84180-1203

RECEIVED

MAY 07 1992

DIVISION OF
OIL & GAS

RE: Anadarko Petroleum Corporation
Matt's Summit Coalbed Methane Project
Carbon and Utah Counties, Utah

Dear Ms. Nielsen;

Heitzman Drill-Site Services is currently in the process of preparing an Environmental Assessment of six (6) coalbed methane wells and one (1) water injection well proposed by Anadarko Petroleum Corporation in Carbon and Utah Counties, Utah. These seven (7) total wells represent a pilot program for coalbed methane in the Matt's Summit area and, if successful, could result in full field development of the coalbed methane resource within the leasehold/unit area. Full field development would be analyzed under a separate document to be prepared at a later date and would be contingent upon production results obtained from this pilot program.

The seven (7) well locations to be included in this pilot program are as follows:

1. Matt's Summit State B-1 : Coalbed Methane Well
NW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$, Section 10, T12S, R9E; Carbon County, UT
2. Matt's Summit Federal A-1 : Coalbed Methane Well
NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$, Section 15, T12S, R9E; Carbon County, UT
3. Matt's Summit Federal A-2 : Coalbed Methane Well
NW $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$, Section 14, T12S, R9E; Carbon County, UT
4. Matt's Summit Federal B-1 : Coalbed Methane Well
SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$, Section 11, T12S, R9E; Carbon County, UT

Ms. Dianne R. Nielsen

May 5, 1992

Page Two

5. Matt's Summit State C-1 : Coalbed Methane Well
NW $\frac{1}{4}$ SE $\frac{1}{4}$, Section 2, T12S, R9E; Carbon County, UT
6. Matt's Summit Federal B-2 : Coalbed Methane Well
NW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$, Section 11, T12S, R9E; Carbon County, UT
7. Emma Park State A-1 : Water Injection Well
NE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$, Section 32, T11S, R9E; Utah County UT

For your convenience, I have included a brief "Proposed Action" to acquaint you with the drilling proposal as well as a map showing the location for each of these proposed well locations.

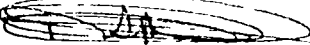
As stated above, this environmental assessment will only address the initial exploration phase of the Matt's Summit Coalbed Methane Project and will be prepared under guidance provided by the Price River Resource Area Office, Bureau of Land Management.

In this regard, I would like to request that your office review this exploration proposal and provide any comments/concerns which your office may have regarding this project and the potential impacts (or benefits) to the State of Utah arising therefrom.

Should you require any additional information or have any questions in this regard, please do not hesitate to give me a call.

Your kind attention to this matter will be most appreciated.

Sincerely,



Robert M. Anderson

RMA/ibm
Enclosure

REGISTRAR Canadian Titanium Corp. N-003 DATE 10-5-90
ALL NAME Matt's Summit Actual A-1
C SE 15 T 105 R 9E COUNTY Carbon

13-001-30150
API NUMBER

Actual (1)
TYPE OF LEASE

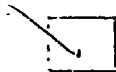
CHECK OFF



PLAT.



BOND



NEAREST
WELL



LEASE



FIELD
SLBM



POTASH OR
OIL SHALE

PROCESSING COMMENTS:

Appraising as a unit with per 1/4 m.
Water Permit
RDEC 15-14-90

APPROVAL LETTER:

R1149-03

PACING:



R615-2-3

Matt's Summit
UNIT



R515-3-2



1/1A
CAUSE NO. & DATE



R615-5-3

TIPOULATIONS.

1- Water Permit



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE RESOURCES

Norman H. Bangerter
Governor

Dee C. Hansen

Executive Director

Timothy H. Provan

Division Director

July 1, 1992

*Further for consideration
1-2 fee*

RECEIVED

JUL 08 1992

DIVISION OF
OIL GAS & MINING

Dr. Dianne R. Nielson, Director
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180

Dear Dianne:

See 15, 125, 50 13-001 3015-2

This letter is in response to four applications for permits to drill (APD's) in the Matts Summit area of Carbon County. The APD's are for Matts Summit State B-1 well, Matts Summit Federal B-1 well, Matts Summit Federal A-2 well and Matts Summit Federal A-1 well.

Enclosed is a letter dated April 21, 1992, to Mr. Robert Anderson, consultant for Heitzman Drill-Site Services, who is preparing an environmental assessment for Anadarko Petroleum Corporation's Matts Summit Coalbed Methane Project. The letter outlines the Division of Wildlife Resources' concerns and recommendations regarding this project. The issues and recommendations found in the letter should be considered as these APD's are reviewed. We are particularly concerned with the cumulative impacts to wildlife of this project and Cockrell Oil's methane project in this same area. The impacts of these two projects represent a significant alteration of critical wildlife habitat. Such impacts should be considered and addressed.

We appreciate the opportunity to provide input on these applications. We will also be working with the Bureau of Land Management as they complete the NEPA process for this project. If you have any questions regarding our comments, please contact Ken Phippen, Regional Habitat Manager (637-3310).

Sincerely,

Timothy H. Provan

Timothy H. Provan
Director

Enclosure



Norman H. Bangert
Governor
Dee C. Hanson
Executive Director
Darlene K. Nelson, P.E.
Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
Salt Lake City, Utah 84103-1200
801-538-5300

June 8, 1992

Anadarko Petroleum Corporation
P.O. Box 4499
Houston, Texas 77210-4499

Gentlemen

Re Matt's Summit Federal A-1 Well, 1550 feet from the north line, 700 feet from the east line, SE 1/4 NE 1/4, Section 15, Township 12 South, Range 9 East, Carbon County, Utah

Pursuant to Utah Code Ann. § 40-6-18, (1953, as amended), Utah Admin. R. 649-2-3, and Utah R. 649-3-4, approval to drill the referenced well is hereby granted.

In addition, the following specific actions are necessary to fully comply with this approval:

1. Submittal to the Division of evidence providing assurance of an adequate and approved supply of water as required by Utah Code Ann. § 73-3, Appropriations, prior to commencing drilling operations.
2. Compliance with the requirements of Utah Admin. R. 649-1 et seq., Oil and Gas Conservation General Rules.
3. Notification within 24 hours after drilling operations commence.
4. Submittal of Entity Action Form, Form 6, within five working days following commencement of drilling operations and whenever a change in operations or interests necessitates an entity status change.
5. Submittal of the Report of Water Encountered During Drilling, Form 7.
6. Prompt notification prior to commencing operations, if necessary, to plug and abandon the well. Notify Frank R. Matthews, Petroleum Engineer, (Office) (801)538-5340, (Home) (801)476-8613, or R.J. Firth, Associate Director, (Home) (801)571-6068.

Page 2


Anadarko Petroleum Corporation
Matt's Summit Federal A-1 Well
June 8, 1992

6. Compliance with the requirements of Utah Admin. R. 649-3-20, Gas Flaring or Venting, if the well is completed for production

Prior to commencement of the proposed drilling operations, plans for facilities for disposal of sanitary wastes at the drill site should be submitted to the local health department. These drilling operations and any subsequent well operations should be conducted in accordance with applicable state and local health department regulations. A list of local health departments and copies of applicable regulations are available from the Department of Environmental Quality, Division of Drinking Water/Sanitation, telephone (801)538-6159.

This approval shall expire one year after date of issuance unless substantial and continuous operation is underway or a request for an extension is made prior to the approval expiration date. The API number assigned to this well is 43-007-30152

Sincerely,



R.J. Firth
Associate Director, Oil and Gas

ldc

Enclosures

cc Bureau of Land Management
J.L. Thompson

WOH

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE*
(Other instructions on
reverse side)

FORM APPROVED,
Budget Bureau No. 1004-0136
Expires August 31, 1985

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK			5. LEASE DESIGNATION AND SERIAL NO. U-65943	
1a. TYPE OF WORK DRILL <input checked="" type="checkbox"/> DEEPEN <input type="checkbox"/> PLUG BACK <input type="checkbox"/>			6. IF INDIAN ALLOTTEE OR TRIBE NAME ---	
b. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER Coalbed Methane <input type="checkbox"/> SINGLE ZONE <input type="checkbox"/> MULTIPLE ZONE <input type="checkbox"/>			7. UNIT AGREEMENT NAME Matt's Summit	
2. NAME OF OPERATOR Anadarko Petroleum Corporation			8. FARM OR LEASE NAME Matt's Summit Federal	
3. ADDRESS OF OPERATOR P.O. Box 4499 Houston, TX 77210-4499			9. WELL NO. A-1	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements *) At surface 1550' FNL & 700' FEL of Sec. 15 At proposed prod. zone Samo 43-007-20152			10. FIELD AND POOL, OR WILDCAT Wildcat	
14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE* Approximately 7 miles north of Helper, Utah			11. SEC. T., R., M., OR B.L. AND SURVEY OR AREA SE/NE, Sec. 16, T12S, R9E	
15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest ship, land line, if any) 700'		16. NO. OF ACRES IN LEASE 1640	17. NO. OF ACRES ASSIGNED TO THIS WELL 160	
18. DISTANCE FROM PROPOSED* LOCATION TO NEAREST WELL, CAPPING, COMPLETED, OR APPLIED FOR ON THIS LEASE, FT. 2319'		19. PROPOSED DEPTH 5000'	20. ROTARY OR CABLE TOOLS Rotary	
21. ELEVATIONS (Show whether of RT, GR, ETC.) GR: 8040'			22. APPROX. DATE WORK WILL START July 1, 1992	

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM. If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout prevention program if any.

24

SIGNED William C. Stringer TITLE Coordinator, Regulatory & Safety DATE 4/13/92

(If a space for Federal or State office use)

PERMIT NO. 757 WILLIAM C. STRINGER APPROVAL DATE 4/13/92
APPROVED BY William C. Stringer TITLE Assistant Manager DATE 4/13/92

CONDITIONS OF APPROVAL, IF ANY
**FLARING OR VENTING OF
GAS IS SUBJECT TO NTL 4-A CORP**
Dated 1/1/80

*See Instructions On Reverse Side

TOWNSHIP 12 SOUTH

RANGE 9 EAST

S 89° 43' 30" E

ANADARKO PETROLEUM CORPORATION
MATT'S SUMMIT FEDERAL A-1
SET 5/8" x 24" REBAR
ELEV = 8040.0

15

NOTE

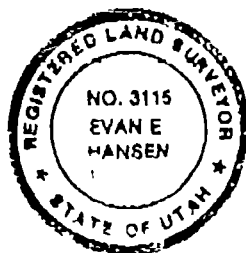
ELEVATION OBTAINED FROM STATION
"MATT'S SUMMIT" MARKED 7454 ON
MATT'S SUMMIT QUADRANGLE 7.5 MINUTE
TOPOGRAPHIC MAP

1550'

700'

S 0° 01' E

SCALE: 1" = 1000'



BASIS OF BEARING

BASIS OF BEARING S 89° 43' W, OBTAINED FROM G.L.O.
PLAT DATED OCTOBER 30, 1915 BETWEEN THE
NORTHWEST CORNER AND THE NORTH QUARTER CORNER
OF SECTION 14, TOWNSHIP 12 SOUTH, RANGE 9 EAST,
SALT LAKE BASE AND MERIDIAN

LEGEND

- ◇ FOUND BRASS CAP SECTION CORNER
- ① FOUND BRASS CAP QUARTER CORNER

SURVEYOR'S CERTIFICATE

I, EVAN E. HANSEN, DO HEREBY CERTIFY THAT I AM
A REGISTERED LAND SURVEYOR AND PROFESSIONAL ENGINEER HOLDING
CERTIFICATES NO. 3115, AND NO. 3354 AS PRESCRIBED UNDER THE LAWS
OF THE STATE OF UTAH. I FURTHER CERTIFY THAT I HAVE MADE A
SURVEY OF THE TRACT OF GROUND SHOWN AND THAT IT IS TRUE AND
CORRECT TO THE BEST OF MY KNOWLEDGE.

Evan E. Hansen
EVAN E. HANSEN

DATE 11 29 1991
GAE

Empire Engineering

1865 E SAGEWOOD RD PRICE, UTAH 84501

ANADARKO PETROLEUM CORPORATION
MATT'S SUMMIT FEDERAL A-1

Drawn By TH	Approved By EEH	Drawing No
Date 11 29-91	Scale 1" = 1000	EEOG-116

Amalgam Petroleum Corporation
Well No. Matt's Summit Federal A-1
SENE Sec. 15, T. 17 S., R. 9 E.
CARPENTER COUNTY, UTAH
Lease U-65943
Matt's Summit Well

CONDITIONS OF APPROVAL

Approval of this application does not warrant or certify that the applicant holds legal or equitable title to those rights in the covered lease which would entitle the applicant to conduct operations thereon.

It is advised that Amalgam Petroleum Corporation, as considered to be the operator of the above well, and is responsible under the terms and conditions of the lease for the operations conducted on the covered lands.

Bond coverage for this well is provided by Amalgam Petroleum Corporation, as surety, consent as provided in the lease.

This permit will hold the aforementioned operator and bond holder until the provisions of 40 CFR 150.101 (a) (1) (i) are met.

This permit will be valid for a period of 12 months from the date of approval. If operations are not commenced within this period, the permit will be void. If operations are not commenced within this period, the permit will be void.

All lease operations will be conducted in full compliance with applicable regulations of 40 CFR 150.101 (a) (1) (i) and all other laws, rules, regulations, orders, and decrees of the Federal Government. The operator is fully responsible for the actions of his subcontractors. A copy of these regulations and the approval shall be made available to the representative of the Bureau of Land Management.

2. DESIGNING PERSON

There is no person who has been approved by the Bureau of Land Management, as required by 40 CFR 150.101 (a) (1) (i), to design the well. The Bureau of Land Management has approved the design of the well by the Bureau of Land Management, as required by 40 CFR 150.101 (a) (1) (i).

The Bureau of Land Management has approved the design of the well by the Bureau of Land Management, as required by 40 CFR 150.101 (a) (1) (i).

3 No trivalent or hexavalent chromate additives shall be used in the mud system. Due to potential for contamination of usable quality water aquifers, chromates are banned from Federal leases.

4. Operations authorized by this permit shall not be suspended for more than 30 days without prior approval of the Authorized Officer. All conditions of this approval shall be applicable during any operations conducted with a replacement rig.

5 Should the well become productive the ELM, District Office must be notified no later than five business days after production begins. Notification shall be by letter or sundry notice, or orally to be followed by a letter or sundry notice.

6 Gas produced from this well may not be vented or flared beyond an initial authorized test period of 30 days or 50 Mmcf following its completion, whichever comes first without prior written approval of the Authorized Officer.

7 The 3000 psi (3M) BOP system will be consistent with API RP 53 and Onshore Oil and Gas Order 6. Pressure tests of the surface casing and all BOP equipment potentially subject to pressure will be conducted before drilling the surface casing shoe. Blowout preventer control will be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned. Ram preventers shall be inspected and operated each day (no more than once a day is necessary), and annular preventers shall be inspected and operated weekly to ensure good mechanical working order. These inspections shall be recorded on the daily drilling report.

8. When the completion program is determined, a sundry notice describing the completion shall be submitted to the ELM, Moab District Office

9 Surface casing shall be set in a competent zone of the North Horn Formation, shall be equipped with a centralizer on each of the bottom three joints and shall be cemented to surface.

10. Production casing shall be cemented to surface or, at a minimum, 50 feet into the 8 5/8 inch surface casing. This will insure that all potential fresh water aquifers are protected

11 During air drilling a mist and/or dust diversion system must be used to keep excessive cuttings dust from escaping from the blowout pit

CONDITIONS OF APPROVAL

1. Access Conditions

- a. Existing roads and trails will be upgraded only to allow for adequate drainage measures. Any damage caused to roads during the project will be repaired.
- b. Prior to construction of the new access road, an onsite analysis will be conducted to flag the exact route and establish design criteria. The route will be located as identified under proposed action in the EA.
- c. Design criteria will be established to meet requirements of BLM's Class III road system. Any road will have a maximum travel surface of 18 feet. Total disturbed width will be limited to 25 feet.
- d. The Price River Resource Area Manager will be notified at least 48 hours prior to any surface-disturbing activities associated with access road and drill pad construction.
- e. Dust control on all portions of the route will be required during project construction and during well drilling, and it may be necessary later if the project reaches economic production.
- f. During inclement weather when activity could result in deep rutting of the roads (6 inches or more) or excessive disturbance of the right-of-way, a stop work order may be verbally issued by the Area Manager with a follow-up written order. An authorization to resume work will be required.
- g. Flow measurements are to be taken at the head of each produced water discharge line and at each junction and/or discharge point, whether for surface or underground discharge. These will be recorded every 72 hours or more often when necessary. This data will be summarized and reported monthly to BLM-PRRA. Any incidence of flow data discrepancy is to be reported to the State Division of Environmental Health and the Price River Resource Area within 48 hours. This is to be resolved within 12 hours of discovery.
- h. Summarized results of all analyses of produced water will be sent to the Price River Resource Area, preferably on a monthly basis initially. This is to include baseline data already gathered.
- i. Plans will be formulated for long-term monitoring of aquifers and springs in the area of proposed development to assess any cumulative impacts that may trigger the need for an Environmental Impact Statement.

j. There will be no deviation from the proposed drilling and/or workover program without prior approval from the Assistant District Manager for Minerals. Safe drilling and operating practice must be utilized at all times. All wells, whether drilling, producing, suspended, or abandoned and/or separate facilities, will be identified in accordance with 43 CFR 3162.6.

k. "Sundry Notice and Report on Wells" (Form 3160-5) will be filed for approval of any changes of plans and other operations in accordance with 43 CFR. 3162.6.

l. The dirt contractor will be provided with an approved copy of the surface use plan.

m. This permit will be valid for a period of one year from the date of approval. After permit termination, a new application must be filed before approval may be granted for any future operations.

Each APD will have well-specific wildlife conditions of approval attached.

2. Well-Specific Wildlife Conditions

a. <u>Well Number</u>	<u>Lease Status</u>	<u>Surface Ownership</u>	<u>Location</u>
Federal B-1	Federal	Federal	T12S R9E Sec 11 SESW
Federal A-2	Federal	Federal	T12S R9E Sec 14 SENW
Federal A-1	Federal	Federal	T12S R9E Sec 15 SENE

1. In order to protect sage grouse nesting/brood rearing, wintering mule deer and elk, fawning and calving deer and elk; exploration, drilling and other development activity will be allowed only during the period from 7/1 through 11/1

2. No surface occupancy or other surface disturbance within 330 feet of the centerline of perennial streams or within 660 feet of springs.

3. Participate in development and implementation of an offsite mitigation plan to compensate for 53.9 acres of direct habitat loss and 3,936 acres of reduced habitat suitability.

4. Delay drilling and other development activity until after August 1, 1992 to avoid impacts to the active redtail hawk nest in section 11.

5. Relocate Federal B-1 well approximately 1,200 feet due west into the W/2SESW of section 11 to minimize impacts to redtail hawk nest territory in section 11.

6. Construct three artificial nest structures in suitable trees in the vicinity of the active redtail hawk nest and out of the area of influence of any of the facilities proposed in Anadarko's exploration program. Site selections will be made by a consultant for the proponent qualified as a raptor biologist and coordinated with BLM and UDWR. Construction methods, materials and specifications will be developed by the proponent's consultant and submitted to BLM for approval prior to construction. Construction must be completed prior to November 1, 1992.

7. Construction of new roads will, to the extent practical, be located away from ridgetops and/or utilize existing topography and vegetation to screen developments.

8. Possession of either firearms or pets by company personnel will not be allowed in the project area.

9. Maximum speed limit for all secondary roads within the project area is 25 miles per hour and shall be posted accordingly.

10. Company will post state wildlife laws and regulations in conspicuous places at job site.

B. SURFACE USE PLAN

1. The dirt contractor will be provided with an approved copy of the surface use plan of operations before initiating construction.

2. All wells, whether drilling, producing, suspended, or abandoned, will be identified in accordance with 43 CFR 3162.1.

3. A cultural resource clearance will be required before any construction begins. The operator is responsible for informing all persons in the area who are associated with this project that they will be subject prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the authorized officer (AO). Within five (5) working days, the AO will inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places;
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary), and,
- a time frame for the AO to complete an expedited review under 36 CFR 800.11 to confirm through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation costs. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

4. The reserve pit shall be located in cut material, with at least 50% of the pit volume being below original ground level. Three sides of the reserve pit will be fenced before drilling starts. The fourth side will be fenced as soon as drilling is completed, and shall remain until the pit is dry. As soon as the reserve pit has dried all areas not needed for production will be rehabilitated.

5. Surface disturbance and vehicular travel will be limited to the approved location and access road. Any additional area needed must be approved by the Area Manager in advance.

6. Trash must be contained in a trash cage and hauled away to an approved disposal site as necessary but no later than at the completion of drilling operations.

7. If the well is productive, cattle guards will be installed on the access road at fence crossings. The access road will be rehabilitated or brought to Resource (Class III) Road Standards within sixty (60) days of dismantling the drilling rig. If this time frame cannot be met, the Area Manager will be notified so that temporary drainage control can be installed along the access road.

8. If a tank battery is constructed on this lease, it will be surrounded by a dike of sufficient capacity to contain 100% of the storage capacity of the largest tank in the battery. All loading lines and valves will be placed inside the dike surrounding the tank battery.

9. All permanent construction for oil or gas production or support structures constructed or installed (including oil well pumping units) shall be painted a flat, non-reflective, earth tone color to blend with the local environment, as determined by the Rocky Mountain Five-State Interstate Committee. All facilities shall be painted within six (6) months of installation. Facilities required by OSHA may be excluded. Colors shall be coordinated with the appropriate regulatory office prior to initiating painting.

10. All on-lease storage, off-lease equipment, or commingling (on-lease or off-lease) shall have prior written approval from the Assistant District Manager.

11. Pipeline construction activity is not authorized under this permit.

12. Copies of all water analysis required by the State of Utah in relation to surface discharge of produced water will be submitted to the Moab District Office, Bureau of Land Management.

13. Produced waste water will be confined to an unlined pit for a period not to exceed ninety (90) day after initial production. During the ninety (90) day period, an application for approval of a permanent disposal method and location, along with the required water analysis, will be submitted for the Assistant District Manager's approval pursuant to Onshore Oil and Gas Order No. 3 (NTL-2B).

14. If at any time the facilities located on public land authorized by the terms of the lease are no longer included in the lease (due to contraction in the unit or other lease or unit boundary change) the BLM will process a change in authorization to the appropriate statute. The authorization will be subject to appropriate rental, or other financial obligation determined by the Bureau of Land Management (BLM).

C. REQUIRED NOTIFICATIONS AND APPROVALS

Required verbal notifications are summarized in Table 1, attached.

Spud- Written notification in the form of a Spuddy Notice (Form 3160-5) will be submitted to the District office within twenty-four (24) hours after spudding (regardless of whether spud was made with a dry hole digger or big rig). If the spudding occurs on a weekend or holiday, the written report will be submitted on the following work day.

Undesirable Events/Immediate Reports- Serious blowouts, fires, leaks, accidents, or any other unusual occurrences shall be immediately reported to the Resource Area in accordance with requirements of NTL-3A.

Cultural Resources- If cultural resources are discovered during construction, work that might disturb the resources is to stop, and the Area Manager is to be notified.

First Production- Should the well be successfully completed for production, the Assistant District Manager, Operations Division will be notified when the well is placed in producing status. Such notification may be made by phone, but must be followed by a written notice or letter not later than five (5) business days following the date on which the well is placed in production.

A first production conference will be scheduled within fifteen (15) days after receipt of the first production report. The Resource Area Office will coordinate the field conference.

Well Completion Report- Whether the well is completed as a dry hole or as a producer, "Well Completion and Recommendation Report and Log" (Form 3160-4) will be submitted to the District Office not later than thirty (30) days after completion of the well or after completion of operations being performed, in accordance with 43 CFR 3162.4-1. Two copies of all logs, core descriptions, core analyses, well test data, geologic summaries, sample description, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, will be filed with Form 3160-4. Samples (cuttings, fluids, and/or gas) will be submitted when requested by the Assistant District Manager.

Plugging and Abandonment- if the well is completed as a dry hole, plugging instructions must be obtained from the RIM, Compliance and Office prior to initiating plugging operations. Table 1 of this document provides the after-hours phone numbers of personnel who are authorized to give plugging instructions.

A "Subsequent Report of Abandonment" (Form 3150-2) will be filed with the Assistant District Manager, Minerals Division within thirty (30) days following completion of the well for abandonment. This report will indicate where plugs were placed and the current status of surface restoration. Upon completion of approved plugging, a regulation marker will be erected in accordance with 43 CFR 3162.6. Final abandonment will not be approved until the surface reclamation work required by the approved APD or approved abandonment notice has been completed to the satisfaction of the Area Manager or his representative, or the appropriate surface managing agency.

Venting/Flaring of Gas- NTL-4A allows venting/flaring of gas during the initial well evaluation period not to exceed 30 days or 31,440 cu ft. Venting/flaring beyond the initial test period threshold must be approved by the District Office.

PAGE 1

NOTIFICATIONS

Notify Dean Hyffeler, Don Stephens or Mike Krumpholtz of the Peace River Resource Area, at (801) 657-4584 for the following:

2 days prior to commencement of dilt work, construction or reclamation:

1 day prior to spudding:

50 feet prior to reaching surface casing setting depth:

3 hours prior to testing ROPE:

If the person at the above number cannot be reached, notify the Road District Office at (801) 259-6111. If unsuccessful, notify one of the people listed below.

Well abandonment operations require 24 hour advance notice and prior approval. In the case of newly drilled wells, verbal approval can be obtained by calling the Road District Office, Branch of Fluid Minerals at (801) 259-6111. If approval is needed after work hours, you may contact the following:

Dale Manchester, Petroleum Engineer Office: (801) 259-6111
Home: (801) 259-6111

Eric Jones, Petroleum Engineer Office: (801) 259-6111
Home: (801) 259-6111

If unable to reach the above individuals, please call the following:

Lynn Jackson, Office: (801) 259-6111
Chief, Branch of Fluid Minerals Home: (801) 259-7890

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

The proposed action involves the drilling, completion and evaluation of six additional (6) coalbed methane wells and one (1) water injection well at surface locations as shown below:

1. Matt's Summit State B-1 : Coalbed Methane Well
NW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$, Section 10, T12S, R9E; Carbon County, UT
2. Matt's Summit Federal A-1 : Coalbed Methane Well
NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$, Section 15, T12S, R9E; Carbon County, UT
3. Matt's Summit Federal A-2 : Coalbed Methane Well
NW $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$, Section 14, T12S, R9E; Carbon County, UT
4. Matt's Summit Federal B-1 : Coalbed Methane Well
SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$, Section 11, T12S, R9E; Carbon County, UT
5. Matt's Summit State C-1 : Coalbed Methane Well
NW $\frac{1}{4}$ SE $\frac{1}{4}$, Section 2, T12S, R9E; Carbon County, UT
6. Matt's Summit Federal B-2 : Coalbed Methane Well
NW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$, Section 11, T12S, R9E; Carbon County, UT
7. Emma Park State A-1 : Water Injection Well
NE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$, Section 32, T11S, R9E; Utah County UT

Considering that the exploration for, development, and production of coalbed methane gas is a radically different technology from conventional natural gas wells, it is essential to gather preliminary information on the coal seam(s) prior to undertaking extensive and/or expensive development thereof.

In this regard, drilling of the six (6) exploratory well locations listed above is necessary in order to provide the following baseline data:

1. coal thicknesses in the drilling area,
2. volumetric gas content of these coals,
3. BTU content of the methane gas contained therein,
4. length of time required to dewater the coal(s) and initiate gas desorption therefrom,

2.1 Proposed Action - Continued

5. relative volume(s) of water which must be removed per well prior to the onset of gas desorption,
6. quality of the water produced from the coal seam(s), and
7. potential gas production (volumetric) from the target coal seam(s) once desorption has peaked.

Once these parameters have been more accurately defined, a decision can be made as to the commercial feasibility of additional development of the coalbed methane resource in this area.

Of these six (6) exploratory well locations, four (4) are situated on federally owned surface estate, one (1) is owned by the State of Utah and the remaining location is situated on privately owned surface estate, as shown in Table 1-1, below.

Table 1-1

Surface Ownership of Proposed Well Locations

Well Name	Surface Ownership
State B-1	Park Ventures
Federal A-1	United States of America (BLM)
Federal A-2	United States of America (BLM)
Federal B-1	United States of America (BLM)
State C-1	Jerry, James and Dix Jensen
Federal B-2	United States of America (BLM)

The proposed water injection well is located on privately-owned surface estate belonging to Norma Jeanne Moynier et al.

2.1.1 Construction Operations

The leveled (pad) area required for each of the seven (7) well locations for drilling, completion and initial evaluation operations will be approximately 1.56 acres in size. The total surface disturbance resulting from construction of all seven (7) well locations (including areas of cut, fill and topsoil/subsoil storage) will equal approximately 25.33 acres, for an average of 3.62 acres/well location.

In addition, approximately 2.25 miles of new access road construction will be required for access to these seven (7) proposed well locations, for an average of 0.32 miles of road construction per well location. Considering a total disturbed right-of-way (ROW) width not to exceed thirty (30) feet, this road construction would result in approximately 8.20 acres of additional surface disturbance, equal to approximately 1.17 acres of new road construction per well location.

2.1.2 Drilling Operations

Drilling operations on these wells should require no more than twenty-one (21) days per well location from the time the drilling rig is moved onto the well location and rigged up until such time as the hole has been drilled, casing set and the rig moved off of the location.

The actual drilling operation will utilize a water-based mud system with non-hazardous additives for lost circulation, hole stabilization and/or hole conditioning prior to logging and/or running casing. Basically, this system involves drilling with water and utilizing additives (such as bentonite) to prevent hole collapse in water sensitive formations (shales).

Upon completion of the drilling operation, production casing is set to total depth and cemented back to surface, isolating all formations in the hole, which effectively eliminates any possibility for fluid communication between potential hydrocarbon bearing zones and any fresh water aquifers which may be encountered in the hole.

2.1.3 Completion Operations

Once the well has been drilled and cased, a work-over unit is moved onto the well location and completion operations are commenced which generally require an average of five (5) days per well location. This completion operation consists of cleaning out the hole, logging, pressure testing the casing and perforating the targeted horizons in the coal seam downhole.

After the casing has been perforated, production tubing is run and the well is flow tested for initial water/gas production rates. Based upon the initial performance of the well, a decision may be made to fracture (frac) the coal seam(s) with a mixture of sand and gelled water. As the formation is fractured, the resulting fissures (fractures) are filled with sand which props open these fissures, thereby facilitating the flow of water and/or gas into the well bore.

After completion operations, the well will be placed on pump with pumping operations continuing until such time as a proper evaluation of the coalbed methane reservoir has been obtained (estimated six (6) months, minimum).

2.1.4 Evaluation Operations

Generally speaking, methane gas within the coal bed is held in place by pressure from water contained in fractures within the coal seam. Mechanical pumping removes this water, lowering the formation pressure, and thus allowing the gas to "desorb" from the coal. An evaluation of the actual volume(s) of water removed from these exploratory wells prior to commencement of desorption coupled with the resultant desorption rates can be extrapolated to calculate the commercial feasibility of additional development including potential well densities required to accomplish economic recovery of the coalbed methane resource.

As the coal is dewatered, desorption will occur and methane gas will commence flowing to the surface. Typically, there is an inverse relationship between water and gas production, with water volumes tending to decrease over time as the coal is dewatered, while gas volumes tend to increase as the water is removed from the formation. Eventually, an equilibrium will be reached at which point maximum gas desorption will occur in association with diminished water production. However, this equilibrium can only be maintained as long as the well remains on pump.

2.1.4 Evaluation Operations - Continued

Should the well be "shut-in" for any period of time, the coal will recharge with water resulting in a loss of gas production therefrom.

2.1.5 Disposal of Produced Water

Initially, Anadarko proposes to dispose of waters produced from these wells through underground injection. Subsurface injection of produced water would be in strict accordance with Underground Injection Control (UIC) rules and regulations.

As an alternative to subsurface disposal, Anadarko Petroleum Corporation would consider reserve osmosis for treatment of the produced water stream, discharge of the treated water and re-injection of the concentrate. Surface water discharge would be regulated under an NPDES (National Pollutant Discharge Elimination System) permit (to be issued by the State of Utah), in conjunction with an NTL-2B (Notice to Lessees Number 2B) application (to be issued by the Price River Resource Area Office, Bureau of Land Management).

Issuance of these permits for the surface discharge of produced waters would be contingent upon the water meeting pre-established minimum criteria for quality and would include a rigorous testing regimen to insure that the discharged water continues to meet the minimum standards established by the Environmental Protection Agency for surface discharges.

2.1.6 Pipelines

During the initial dewatering phase of operations, the need for a pipeline to transport gas will not be necessary as only minimal quantities of gas will be produced. Gas produced during this initial evaluation phase of operations will be vented to the atmosphere under authority from both the State of Utah and the Bureau of Land Management.

Buried pipelines would be required for transport of produced water to the disposal/treatment facility and would be installed adjacent to the existing access road right-of-ways.

2.1.6 Pipelines - Continued

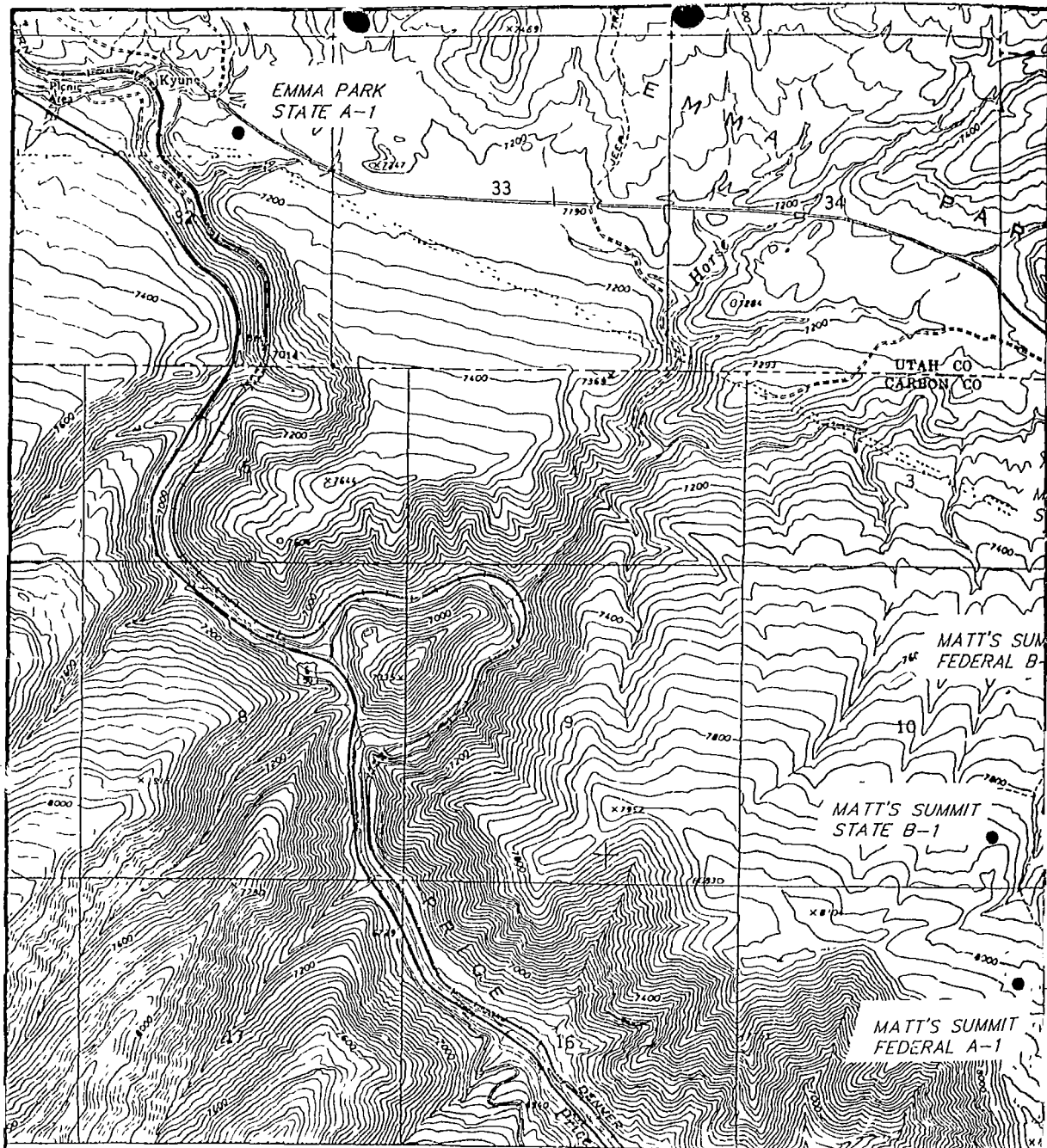
These pipelines would be buried to an average minimum depth of four (4) feet below the natural ground level in order to prevent freeze-up during the winter months and potential damage from surface activities. Considering a disturbed right-of-way (ROW) width not to exceed fifteen (15) feet, installation of these subsurface pipelines will result in approximately 1.82 acres of surface disturbance per mile of pipeline.

2.1.7 Abandonment

As a result of this evaluation program, Anadarko Petroleum Corporation will ultimately make a decision as to the commercial feasibility of developing the coalbed methane resource within the leasehold. If the decision is made to abandon the project, all above ground facilities would be removed from the well locations and the existing well bore(s) would be physically plugged with cement in accordance with requirements of the appropriate regulatory agencies.

Upon completion of plugging operations, both the abandoned well location and attendant access road will be reclaimed according to the requirements of the appropriate surface management agency and/or each respective private surface owner.

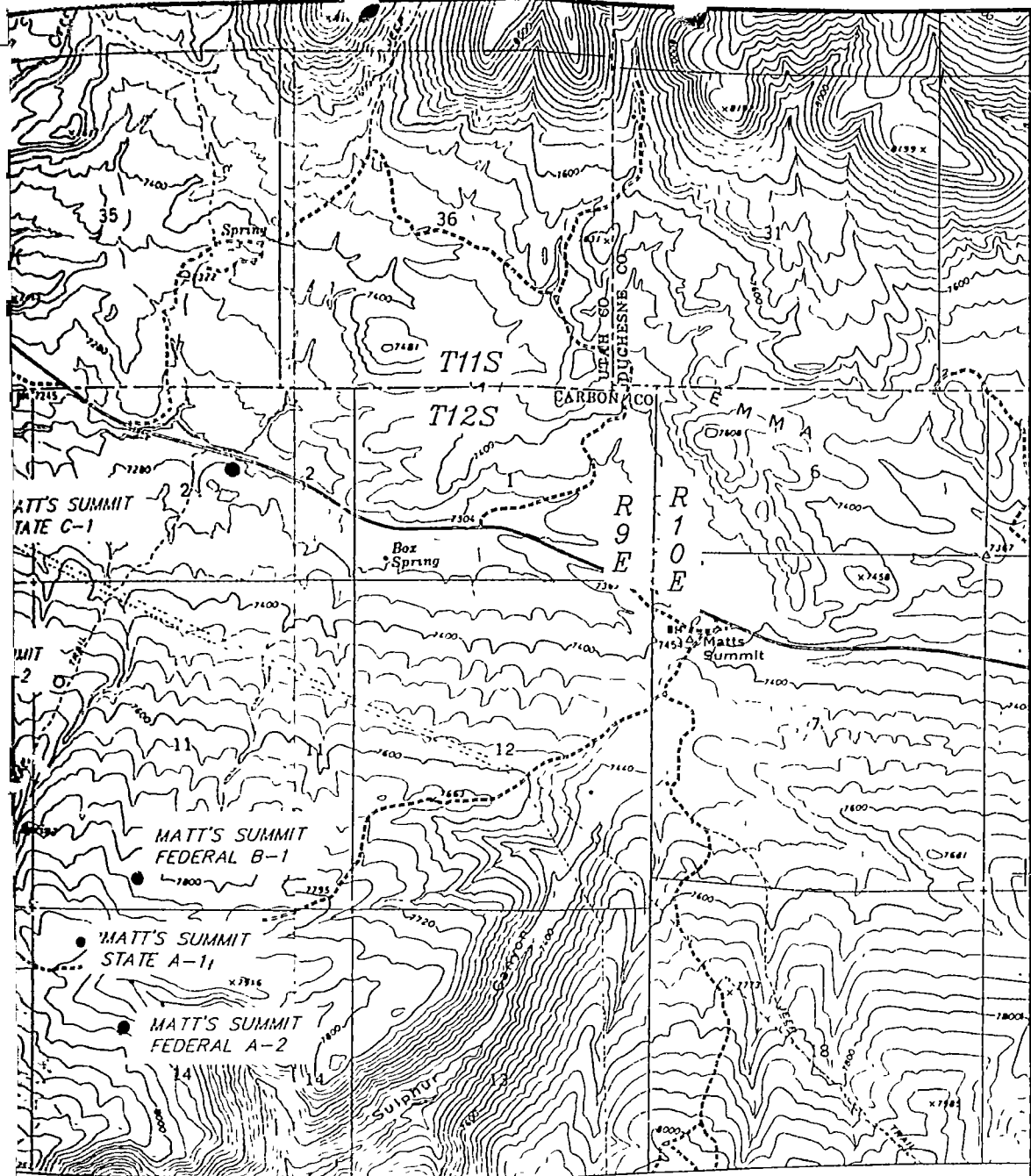
If commercial production is obtained from these well locations, we could reasonably expect production to occur over a fifteen (15) to thirty (30) year period. As wells become non-productive, they will be plugged, abandoned and reclaimed as described above.



TOPOGRAPHIC
MAP

SCALE 1" = 2000'





ANADARKO PETROLEUM CORPORATION

MATT'S SUMMIT UNIT AREA
T11S, R9E, & T12S, R9E, S1B & M

FEBRUARY 8, 1994

TO: WELL FILE

FROM: K. M. HEBERTSON

RE: Status, Matt's Summit Federal A-1 43-007-30152 15-12S-9E

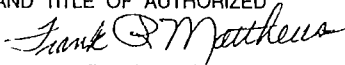
Per telephone conversation with the operator concerning the status of this well, it was determined that the well will not be drilled and the operator has acknowledged that the APD has expired. The operator has been informed that the APD will need to be refiled in order to drill this well at a future date.

As of the above date the APD has been rescinded and the file sent to the LA archives.

KMH

STATE ACTIONS

Mail to
RDCC Coordinator
116 State Capitol
Salt Lake City, Utah 84114

-
1. ADMINISTERING STATE AGENCY
OIL, GAS AND MINING
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
- 2 STATE APPLICATION IDENTIFIER NUMBER:
(assigned by State Clearinghouse)
-
- 3 APPROXIMATE DATE PROJECT WILL START.
Upon approval
-
- 4 AREAWIDE CLEARING HOUSE(s) RECEIVING STATE ACTIONS
(to be sent out by agency in block 1)
Southeastern Utah Association of Governments
-
- 5 TYPE OF ACTION. ☐ Lease ☒ Permit ☐ License ☐ Land Acquisition
☐ Land Sale ☐ Land Exchange ☐ Other _____
-
- 6 TITLE OF PROPOSED ACTION
Application for Permit to Drill
-
- 7 Anadarko Petroleum Corporation proposes to drill the Matt's Summit A-1 well (wildcat) on federal lease U-65943, Carbon County, Utah. This action is being presented to RDCC for consideration of resource issues affecting state interests. The U.S. Bureau of Land Management is the primary administrative agency in this action and must issue approval before operations commence.
-
- 8 LAND AFFECTED (site location map required) (indicate county)
SE/4 NE/4, Section 15, Township 12 South, Range 9 East, Carbon County, Utah
-
- 9 HAS THE LOCAL GOVERNMENT(s) BEEN CONTACTED?
-
- 10 POSSIBLE SIGNIFICANT IMPACTS LIKELY TO OCCUR
See Attachment
-
- 11 NAME AND PHONE NUMBER OF DISTRICT REPRESENTATIVE FROM YOUR AGENCY NEAR PROJECT SITE, IF APPLICABLE
-
- 12 FOR FURTHER INFORMATION, CONTACT
Frank R. Matthews
PHONE 538-5340
- 13 SIGNATURE AND TITLE OF AUTHORIZED OFFICIAL

DATE 5/14/92 Petroleum Engineer

WOI187